

Module 2: Reading and Videos Part 2

Overview: Data Visualization:

One of the key skills that distinguishes a good marketing analysis from a great one is the ability to communicate practical insights to a wide audience. Data visualization combines data analytics with computer graphics to efficiently identify trends, patterns, relationships, and outliers. Many companies use data visualization as a strategic decision marketing tool. Although companies use different advanced analytical tools to the visualization even different departments within companies to effectively share complex information.

Data visualization through graphical depiction of quantitative values achieves two main objectives. First using charts and graphs to visualize data facilitates exploring and comparing results of efficiently. Visualization software identifies and emphasizes the most important information. Many visualization tools such as Tableau, Google Data Studio, Qlik and Microsoft Power BI, provides similar descriptive tools of analysis as well as more advanced functionality. The primary value of data visualization is to effectively obtain insight about what is occurring by highlighting opportunities and challenges.

Second digital data visualization offers a simple and intuitive way to communicate complex topics to others. Data visualization engages the audience through simple and clear communication by highlighting trends and patterns. When designing data visualization outputs, it is important to apply some principles and consider basic elements of layout to ensure the reports are effective.

Design Principles

Some of these design principles are Balance: Design elements should be balanced with the objects or shapes or distributed to correctly use a space. Emphasis, this refers to placing emphasis on important insights to attract the viewers' attention. Proportion this refers to the size of each object in a visualization. Rhythm this is important factor to ensure a perception of seamlessness visual appearing transition between design elements. Variety this is an important element in data visualization for two reasons. Variety is in the type of visualization used i.e. bar graph, line charts, maps etc. promotes engagement in a presentation, and it helps views process the information until long term memory.

Basic elements of design must also be utilized effectively within the visualization. These seven elements are: color, form, line, shape, space, texture, and typography. Take a moment to look up how each of these basic elements are used within design.



Common types of charts and graphs

When creating data visualization to examine relationships it is important to understand how the available data is measured in the various dimensions that are present. Companies often use time series to understand how values evolve overtime. Rankings are where the position is based upon importance, preference, or achievement. Part to whole relationship consists of categories measured as fractions or ratios. Depending on the number of categories being examined bar charts or stacked bars can be useful in communicating the part to whole values. Pie charts are frequency used ways to show this type of relationship, but many experts recommend limited use of pie charts due to their lack of clarity with quantitative scales. Correlation estimates the relationship between two or more numerical values. Scatter plots display a collection of data points for two numerical values. A scattered plot is an important visualization for advanced analytics tasks. It can be a quick understanding of the relationship between two numerical data variables in terms of information as overlapping and when considering clusters of observation.

Frequency distributions indicate how many observations fall within a certain interval in a bar do not overlap or touch each other. The basic information in a frequency distribution enables us to easily understand how values are distributed among the objects we are examining. Histograms are a variation of a frequency distribution that have bars that touch each other. Boxplots are another method to examine distributions and compare subgroups. Geographic relationships can be compared by using maps. Geographic (geospatial) maps display where the location on the map for types of information.

Deviation analysis shows changes compared to another standard of value of reference. Finally, nominal comparisons display different quantities values of so these that are not considered order not shared relationship.



Data visualizations contribute to basic discovery and are used to present information most on quantitative data. This data is used to create visualizations that are effective in telling a cohesive story to address the business question at hand. Development of these visualizations should begin, therefore with getting answers to some critical questions.

1. What data is available?
2. Who is your intended audience?
3. What results are expected from the visualization?
4. What charts help to tell a clear story?